REMARKS

Applicant respectfully requests further examination and reconsideration in view of the instant response. Claims 1-24 remain pending in the case. Claims 1-24 are rejected. Claims 1, 8, 12, 14, 17, 20 and 23 are amended herein. No new matter has been added.

35 U.S.C. §103(a)

Claims 1, 2, 7, 12, 14, 15, 20 and 21 stand rejected under 35 U.S.C. §102(e) as being unpatentable over United States Patent 6,065,018 by Beier et al., hereinafter referred to as the "Beier" reference. Applicant has reviewed the cited reference and respectfully submits that the embodiments of the present invention as recited in Claims 1, 2, 7, 12, 14, 15, 20 and 21 are not unpatentable over Beier in view of the following rationale.

Applicant respectfully directs the Examiner to independent Claim 1 that recites that an embodiment of the present invention is directed to (emphasis added):

> A method of archiving a database, comprising the steps of:
> storing a plurality of archive logs comprising a plurality of transactions on an operational database;
> transmitting a plurality of asynchronous streams to a backup database wherein a first asynchronous stream of said plurality of asynchronous streams is transmitted at a first transmission rate and a second asynchronous stream of said plurality of asynchronous streams is transmitted at a second transmission rate, wherein the plurality of asynchronous streams

correspond to a plurality of archive logs, and wherein the plurality of asynchronous streams are transmitted simultaneously; and

updating the backup database with the plurality of transactions.

Independent Claims 12, 14 and 20 recite similar limitations. Claims 2 and 7 that depend from independent Claim 1, Claim 15 that depends from independent Claim 14, and Claim 21 that depends from independent Claim 20 provide further recitations of features of the present invention.

Applicant respectfully asserts that Beier and embodiments of the claimed invention are very different. Applicant understands Beier to teach a method an apparatus to synchronize recovery logs for recovering related databases having different logical structuring (Abstract). In particular, Beier teaches a method for coordinating disaster recovery of related hierarchical and relational databases where independent transmission protocols are used (col. 2, lines 36-46).

Beier teaches a system wherein multiple databases may be comprised within a single database server (col. 4, lines 63-64). The log records for the multiple databases are synchronized according to a time stamp assigned by a storage manager or a controller of the database (col. 8, lines 37-45). In particular, the update log records may include updates to any or all of the multiple databases. The update log records are transmitted to a remote site for backup protection.

Applicant respectfully asserts that Beier does not teach, describe or suggest that the update log records are transmitted asynchronously. In particular, Beier is silent as to how the record updates are transmitted to the recovery database. In contrast, by teaching that all update log records, regardless of logical structuring, are stored at the same update log, Applicant understands that the update log records are transmitted synchronously.

In contrast, embodiments of the claimed invention are directed towards a method of archiving a database wherein a plurality of asynchronous streams are transmitted simultaneously to a backup database, as claimed. In particular, a first asynchronous stream of the plurality of asynchronous streams is transmitted at a first transmission rate and a second asynchronous stream of the plurality of asynchronous streams is transmitted at a second transmission rate, wherein the plurality of asynchronous streams correspond to a plurality of archive logs, and wherein the plurality of asynchronous streams are transmitted simultaneously.

As described in the present specification, "rather than queuing logs to be sent sequentially whereby one archive log is sent and then waiting for that transfer to complete before the next archive log can be sent, the present invention prepares the archive logs such that multiple archive logs can be transferred simultaneously" (page 8, lines 14-18). Transmitting the multiple

streams simultaneously (e.g., at the same time) and asynchronously (e.g., at different rates) facilitates the expeditious recovery of the backup process.

Applicant respectfully asserts that Beier in particular does not teach, disclose, or suggest transmitting a plurality of asynchronous streams to a backup database, wherein the plurality of asynchronous streams are transmitted simultaneously, as clamed. Beier makes no reference to such a configuration, as Beier does not teach, describe or suggest any transmission rates associated with the transmission of hierarchical log records. On the contrary, by teaching that all update log records, regardless of logical structuring, are stored at the same update log, Applicant understands that the update log records of Beier are transmitted synchronously, and that Beier thus teaches away from the present invention as claimed.

Applicant respectfully asserts that nowhere does Beier teach, disclose or suggest the present invention as recited in independent Claims 1, 12, 14 and 20, and that this claimed subject matter is thus in a condition for allowance. Therefore, Applicant respectfully submits that Beier also does not teach or suggest the additional claimed features of the present invention as recited in Claims 2 and 7 dependant on allowable base Claim 1, Claim 15 dependant on allowable base Claim 14, and Claim 21 dependant on allowable base Claim 20. Therefore, Applicant respectfully submits that Claims 2, 7, 15

and 21 overcome the rejection under 35 U.S.C. § 103(a), and are in a condition for allowance as being dependent on allowable base claims.

Claims 8, 9, 17, 18, 23 and 24 stand rejected under 35 U.S.C. §102(e) as being unpatentable over United States Patent 6,085,298 by Ohran, hereinafter referred to as the "Ohran" reference, in view of United States Patent 6,640,217 by Scanlan, hereinafter referred to as the "Scanlan" reference. Applicant has reviewed the cited reference and respectfully submits that the embodiments of the present invention as recited in Claims 8, 9, 17, 18, 23 and 24 are not unpatentable over the combination of Ohran and Scanlan in view of the following rationale.

Applicant respectfully directs the Examiner to independent Claim 8 that recites that an embodiment of the present invention is directed to (emphasis added):

> A method of performing automatic recoveries on an archived database, comprising the steps of:
> comparing files residing on an operational database to files residing on a backup database;
> determining whether there are any missing files by checking for files which exist on the operational database and which do not exist on the backup database;
> recopying files from the operational database over to the backup database which are missing;
> determining whether there are any corrupted files by checking for files which have a different size on the operational database as compared to corresponding file residing on the backup database;

recopying files from the operational database to the backup database which have become corrupted, wherein the automatic recovery process is run by a program automatically in the background without requiring initiation and is run independent of a complete system backup.

Independent Claims 17 and 23 recite similar limitations. Claim 9 that depends from independent Claim 8, Claim 18 that depends from independent Claim 17, and Claim 24 that depends from independent Claim 23 provide further recitations of features of the present invention.

The combination of Ohran and Scanlan does not teach a method of performing automatic recoveries on an archived database that is run independent of a complete system backup, as claimed. For instance, Ohran and these embodiments of the claimed invention are very different. Applicant understands Ohran to teach a system and method for backing up a primary storage device to a backup storage device (col. 5, lines 24-27). Specifically, Ohran teaches a backup system that determines the difference between data located on the primary storage device and the backup storage device, and backs up only the changed data (col. 5, lines 30-40). In particular, this determination is performed in conjunction with performing a system backup.

With reference to Figure 3 of Ohran, a block diagram of a backup system is shown. The backup system includes backup system processing block 60 and backup storage device 24. Backup system processing block 60 receives

data, processes the data (as explained in Figure 10 of Ohran), and then stores the data on backup storage device 24 (col. 16, lines 13-20). In particular, the processing of the data as performed at backup system processing block 60 is performed in conjunction with the initiation of a backup.

With reference to Figure 10 of Ohran, at steps 214 and 216 it is identified whether a backup is being initiated (col. 29, lines 41-43). Ohran describes in detail various modes for initiating a backup (col. 20, lines 20-61). In particular, Applicant respectfully asserts that Ohran teaches that a backup must be initiated, and that the processing as performed at backup system processing block 60 must be performed in conjunction with a complete backup.

In contrast, embodiments of the claimed invention are directed towards a method of performing automatic recoveries on an archived database that is run independent of a complete system backup, as claimed. In particular, the automatic recovery process is not a system backup, as described in the Ohran reference. In particular, as described in the present specification, the automatic recovery process "detects files on the backup database which may have been accidentally deleted or corrupted by comparing file systems of the host database to that of the backup database." These files are then recopied from the host database to the backup database. Specifically, only those files

that are missing or corrupted are recopied; this is performed independent of a system backup.

A system backup is a time-consuming, computationally intensive task. In general, complete system backups are performed at a relatively low frequency (e.g., once a day, once a week) depending on the amount of data requiring backup. In contrast, an automatic recovery process is a relatively quick task that can be performed at a very high frequency (e.g., every second) because very little data actually gets recopied, only the corrupted or missing data.

Applicant respectfully asserts that Ohran in particular does not teach, disclose, or suggest a method of performing automatic recoveries on an archived database, as clamed. On the contrary, as Ohran teaches a backup that must be initiated in conjunction with comparing data, Applicant respectfully asserts that Ohran teaches away from such a configuration.

Moreover, the combination of Ohran and Scanlan fails to teach or suggest the present invention as claimed because Scanlan does not overcome the shortcomings of Ohran. Scanlan, alone or in combination with Ohran, does not show or suggest a method of performing automatic recoveries on an archived database that is run independent of a complete system backup, as claimed. Applicant understands Scanlan to teach an automated software

device for the extraction of historical records of data backup activity from a plurality of data backup software devices, and storing those records. In particular, Scanlan describes an automated system backup process.

In contrast, as described above, embodiments of the claimed invention are directed towards a method of performing automatic recoveries on an archived database, as claimed. Applicant respectfully asserts that the automatic recovery process as claimed is not a system backup as described in the Scanlan reference. In particular, only those files that are missing or corrupted are recopied in the automatic recovery, which is performed independent of a system backup process.

Scanlan does not teach, disclose, or suggest method of performing automatic recoveries on an archived database that is run independent of a complete system backup, as claimed. On the contrary, Scanlan teaches away from such a configuration, as Scanlan provides for performing an automated system backup. In view of this claim limitation not being shown or suggested in Scanlan, in combination with the above arguments, Applicant respectfully submits that independent Claims 3, 17 and 23 overcome the cited references and are therefore allowable over the combination of Ohran and Scanlan.

Applicant respectfully asserts that nowhere does the combination of Ohran and Scanlan teach, disclose or suggest the present invention as recited

in independent Claims 8, 17 and 23, and that this claimed subject matter is thus in a condition for allowance. Therefore, Applicant respectfully submits that the combination of Ohran and Scanlan also does not teach or suggest the additional claimed features of the present invention as recited in Claim 9 dependant on allowable base Claim 8, Claim 18 dependant on allowable base Claim 17, and Claim 24 dependant on allowable base Claim 23. Therefore, Applicant respectfully submits that Claims 9, 18 and 24 overcome the rejection under 35 U.S.C. § 103(a), and are in a condition for allowance as being dependent on allowable base claims.

Claims 3, 4, 6, 13, 16, 19 and 22 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Beier in view of Ohran, Claims 3, 4 and 6 are dependent on allowable base Claim 1, Claim 13 is dependent on allowable base Claim 12, Claim 16 is dependent on allowable base Claim 14, Claim 19 is dependent on allowable base Claim 17, and Claim 22 is dependent on allowable base Claim 20. Applicant respectfully submits that Claims 3, 4, 6, 13, 16, 19 and 22 overcome the cited art of record and is patentable in view of 35 U.S.C. § 103(a).

Claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Beier in view of United States Patent 5,812,398 by Nielson. Claim 5 is dependent on allowable base Claim 1. Applicant respectfully submits that

Claim 5 overcomes the cited art of record and is patentable in view of 35 U.S.C. § 103(a).

CONCLUSION

Based on the arguments presented above, Applicant respectfully asserts that Claims 1-24 overcome the rejections of record and, therefore, Applicant respectfully solicits allowance of these Claims.

The Examiner is invited to contact Applicant's undersigned representative if the Examiner believes such action would expedite resolution of the present Application.

Respectfully submitted,

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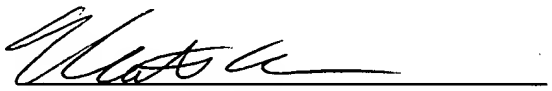

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